

ABSTRACT

An irregular temperature fluctuation is inhibited in a melt which would otherwise hamper the growth of a crystal having a high homogeneity. In the crystal growth FZ method, one component of an atmosphere surrounding the melt, such as an oxygen partial pressure is controlled so as to be 1.8×10^{-5} MPa or higher. In this way, the temperature vibration within the melt becomes a single-cycle vibration, while a turbulence of the temperature vibration will disappear, thereby forming a crystal having a high homogeneity. Further, in the crystal growth CZ method, one component of an atmosphere surrounding the melt, such as an oxygen partial pressure is controlled so as to increase the oxygen partial pressure on the melt surface. In this way, it is possible to reduce the intensity of Marangoni convection on the melt surface. Therefore, the temperature vibration within the melt will be in a single cycle, the turbulence of the temperature vibration will disappear, and it is possible to control the oxygen concentration in the crystal, thereby forming a crystal having a high homogeneity.

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